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The Biologist



Vol. XXVIII, Nos. 1 & 2

Dec., 1945



Phi Sigma

BIOLOGICAL HONOR SOCIETY

"The object of Phi Sigma is to promote interest in biological research. Although originally designated as an honorary biological research society, it should not be considered as a working guild of biologists interested in research. In effect, election to Phi Sigma should be an opportunity for better work, rather than merely election to an honorary society."

Mile Posts:

- 1915 March 17, Alpha Chapter organized, Ohio State University, Columbus.
- 1916 May, Central Governing Body organized, BIOLOGIST first issued.
- 1917 June, last War-time BIOLOGIST issued.
- 1921 February, BIOLOGIST revived.
- 1924 December, First National Meeting, Constitution revised, Washington, D.C.
- 1925 December, Second National Meeting, First Science Program, Kansas City.
- 1926 December, Third National Meeting, Second Science Program, Philadelphia.
- 1927 December, Third Science Program, Nashville.
- 1928 December, Fourth National Meeting, Coat-of-Arms adopted, Fourth Science Program, New York.
- 1930 January, Council Meeting, Ritual Revised, Norman, Okla.
December, Fifth National Meeting, Fifth Science Program, Cleveland.
- 1931 Phi Sigma Letters Registered, U. S. Patent Office.
- 1932 December, Sixth Science Program, Atlantic City.
- 1933 June, Sixth National Meeting, Seventh Science Program, Chicago.
- 1935 December, Seventh National Meeting, Eighth Science Program, St. Louis.
- 1937 December, Eighth National Meeting, Ninth Science Program, Indianapolis.
- 1939 December, Ninth National Meeting, Tenth Science Program, Silver Anniversary, Ohio State University, Columbus.
- 1942 December, Tenth National Meeting, Dallas, Texas.

Expansion:

The Constitution provides that: "An active chapter may be established in any institution of learning which requires for graduation the equivalent of four years of collegiate work, and which is equipped with facilities for research work. - - - Any petitioning group must be active for at least one year before it may be granted a charter."

THE BIOLOGIST

Vol. XXVIII

Denver, Colo., December, 1945

Nos. 1 & 2

Published by the Phi Sigma Society, an organization devoted to the promotion of interest in biological research, founded at Ohio State University, March 17, 1915. The *Biologist* is the official quarterly publication of the society, issued ordinarily in October, December, February and April, as a medium of exchange between chapters, as an interpreter of Council policies, and as a stimulus to the fellowship in science for which Phi Sigma stands.

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Directory

OF ALL ACTIVE AND INACTIVE CHAPTERS

*The list of chapter officers for this school year will be found in the
CHAPTER NEWS section of Vol. XXVII.*

ALPHA

Ohio State University, Columbus, Ohio, founded March 17, 1915, (Inactive).

BETA

University of Michigan, Ann Arbor, Michigan, founded June 3, 1916.

DELTA

University of Maine, Orono, Maine, founded January 27, 1917, (Inactive).

EPSILON

University of Denver, Denver, Colorado, founded March 5, 1917.

ZETA

University of Wisconsin, Madison, Wisconsin, founded May 30, 1917.

ETA

University of Akron, Akron, Ohio, founded April 20, 1921.

THETA

Michigan State College, East Lansing, Michigan, founded April 9, 1921, (Inactive).

IOTA

Washington University, St. Louis, Missouri, founded May 28, 1921.

KAPPA

University of Kansas, Lawrence, Kansas, founded May 31, 1921.

LAMBDA

Montana State University, Missoula, Montana, founded May 4, 1921.

MU

University of California, Berkeley, California, founded April 27, 1922.

NU

Washington and Jefferson College, Washington, Pennsylvania, founded May 11, 1922.

XI

University of Nebraska, Lincoln, Nebraska, founded May 3, 1934, (Inactive).

OMICRON

University of North Dakota, Grand Forks, North Dakota,
founded May 26, 1924, (Inactive).

PI

Emory University, Georgia, founded January 3, 1925.

RHO

University of Illinois, Urbana, Illinois, founded March 28, 1925.

SIGMA

University of Florida, Gainesville, Florida, founded December 4, 1925.

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TAU

Duke University, Durham, North Carolina, founded March 4, 1926.

UPSILON

Miami University, Oxford, Ohio, founded May 7, 1926.

PHI

University of New Hampshire, Durham, New Hampshire, founded May 21, 1926.

CHI

Montana State College, Bozeman, Montana, founded February 11, 1927.

PSI

University of Washington, Seattle, Washington, founded April 7, 1928.

OMEGA

University of Oklahoma, Norman, Oklahoma, founded March 24, 1928.

ALPHA ALPHA

University of Southern California, Los Angeles, California, founded March, 1928

ALPHA BETA

Mount Union College, Alliance, Ohio, founded May 17, 1928.

ALPHA GAMMA

University of South Dakota, Vermillion, South Dakota, founded May 15, 1928, (Inactive).

ALPHA DELTA

Lawrence College, Appleton, Wisconsin, founded March 7, 1929, (Inactive).

ALPHA EPSILON

University of Pittsburgh, Pittsburgh, Pennsylvania, founded March 23, 1929.

ALPHA ZETA

College of William and Mary, Williamsburg, Virginia, founded April 19, 1930, (Inactive).

ALPHA ETA

Oklahoma Agricultural and Mechanical College, Stillwater, Oklahoma, founded March 13, 1930.

ALPHA THETA

State College of Washington, Pullman, Washington, founded May, 1930.

ALPHA IOTA

Bucknell University, Lewisburg, Pennsylvania, founded January 9, 1932.

ALPHA KAPPA

Hunter College, New York City, founded January 8, 1932.

ALPHA LAMBDA

University of Utah, Salt Lake City, Utah, founded February 13, 1932.

ALPHA MU

University and State College of Oregon, Eugene-Portland-Corvallis, Oregon, founded November 18, 1933.

ALPHA NU

University of New Mexico, Albuquerque, New Mexico, founded April 21, 1935.

ALPHA XI

Rhode Island State College, Kingston, Rhode Island, founded May 17, 1935.

ALPHA OMICRON

Marquette University, Milwaukee, Wisconsin, founded June 18, 1938.

ALPHA PI

University of Colorado, Boulder, Colorado, founded May 24, 1941.

ALPHA RHO

University of Arkansas, Fayetteville, Arkansas, founded May 23, 1945.

Installation of Alpha Rho

Chapter of Phi Sigma

(The following account has been culled from the report of the installing officer, Dr. Fred A. Barkley, and from a report written for the Arkansas Traveler, by Weldon Larimore and Melvin Tucker.)

The Alpha Rho chapter of Phi Sigma was installed on the campus of the University of Arkansas in a ceremony held in the blue room of the Student Union, Wednesday afternoon, May 23, 1945, at five o'clock. Dr. Swartz (Theta) acted as sponsor and secretary for the group. The installation began with the reading of the National Chancellor's Proclamation calling for the installation of the Probe and Scope Society as Alpha Rho chapter of Phi Sigma.

Dr. Fred A. Barkley, national vice-chancellor of the society, came from Chicago to perform the installation services. Dr. Barkley has been vice-chancellor since 1939, and has been a member of Phi Sigma since 1928, when Omega chapter was installed at the University of Oklahoma.

The installation included the initiation of 17 charter members and the election of officers. Those initiated were: Jane Lee Bankston, Dorothy Barrett, Robert Samuel Cooke, Jr., George H. Cullins, Mannon E. Gallegly, Elise Greig, Carl Glenn Hunter, Leonard Jack Keeling, Margaret Kerr, Richard Kendrick, Richard Weldon Larimore, Doris Jane Lee, Arlene Miller, Melvin Tucker, Prof. S. C. Dellinger (faculty mem-

ber), Dr. Carl Hofman (Theta), and Dr. D. Swartz (Theta). The officers elected were: Weldon Larimore, of Rogers, president; Robert Cooke, Jr., vice-president; Elise Greig, secretary; and Richard Kendrick, treasurer. Dr. Delbert Swartz, was selected sponsor of the organization.

The installation banquet was held at the Campus Grill, with Dr. Delbert Swartz acting as toastmaster. The banquet program consisted of a welcome by Dr. Barkley to Alpha Rho from the associated chapters of Phi Sigma and from its national council, and a challenge to the new chapter. Mr. Larimore responded for Alpha Rho. The new society was welcomed to the campus by Drs. Moore and Dellinger on behalf of the biological departments, and by Dean Horlacker of the school of agriculture, Dean Hosford of the college of Arts and Sciences, and President Harding, speaking for the University. Dr. Barkley then gave an address on the Sessé and Mociño collection of plants which was made in Mexico from 1787 to 1804 and which has had a very unusual history since that time.† The installation was completed by the reading of letters of congratulation, advice, and good wishes for Alpha Rho from the various chapters.

The chapter had a series of things mapped out for Dr. Barkley, which included an inspection of the campus, the meeting of the faculty of the biological departments, a visit to the Her-

†Paper read by Dr. Barkley will be found in this issue of the journal.

barium of the University of Arkansas, a field trip into the Eureka Springs region, and visiting the laboratories.

Dr. Barkley says, "After visiting with the faculty and members of the new chapter and visiting the laboratories of the University of Arkansas, I am of

the opinion that the chapters have done well to hear favorably the petition of the Probe and Scope Society and that we may expect a chapter of which to be proud on the campus of the University of Arkansas."



The Tertiary Formations of Southwestern Montana

By
J. LEROY KAY
Carnegie Museum

In southwestern Montana there are a great number of intermontane basins or broad valleys filled with sediments of Tertiary age. These sediments range from upper Eocene to Pliocene in age and represent about thirty to thirty-five million years of the geological history of that area, affording an excellent opportunity to study the relationship between the formation and fossil fauna.

Being along the continental divide, this section is drained by both the Atlantic and Pacific drainage systems. During Tertiary times there were many local changes of the continental divide and drainage caused by the upheaval or warping of the earth's crust. These upheavals and intrusions of volcanic materials, which often formed dikes across the streams, caused an impounding of the waters, creating lakes or a chain of lakes between the mountain ranges. In some places these

bodies of water left only the peaks of mountains exposed as islands while, in others, arms of the mountains extended into the lakes as peninsulas forming long irregular shorelines. These shorelines, while obscured today by recent out-wash from the mountains and glacial drift, and in some cases entirely washed away, can be traced for great distances by the topography and occasional outcrops. These lakes, because of the erosion resistant impediments at the outlets, existed for long periods of time, but they were gradually filled in by wind-blown ash from surrounding volcanoes and sediments brought down from the mountains by streams. These stream sediments, mixed with the volcanic materials, formed deltas out into the lakes. So, while there is a general similarity of these sediments, there are local differences and lithological variety. As the water of the lakes was gradually replaced by sediments, swamps were formed. Thus there were long shorelines, deltas, swamps, and near by forested mountain areas. These vari-

ous local ecological areas were inhabited by life suited to each particular habitat. In rare cases, the bodies of animals or plants became buried in the sediments or their tracks or impressions were covered and preserved as fossils as the sediments gradually consolidated and became rocks.

Slowly, as the streams draining these lake areas cut down their channels, new stream channels were established across these lake beds and these channels were in turn filled by new sediments when their outlets were again dammed by more movements of the earth's crust or new intrusions. Since Pliocene times, these sediments, more or less consolidated by this time, have slowly been eroded by the present drainage and exposed in various localities. While for the most part these ancient lake and stream beds form extensive grass covered benches and are more or less covered by recent debris and in some places capped by basalt, there are small areas where they are exposed and, by painstaking effort, one may find the fossil remains of species which existed there ages ago. In most places the strata are flat showing no movements to have taken place since deposition while other places show post-depositional movement by the more or less steeply dipping strata.

In many places where the strata is exposed there are thick beds of almost pure volcanic ash, evidently blown out and deposited in deep water and not mixed with other sediments. At one locality, these beds are over fifty feet thick. In other places are well preserved ripple marks of the shorelines, and in at least one place, well preserved tracks of birds are to be found.

In some outcrops, large silicified trees are exposed—usually in heavy bedded strata indicating rapid deposition. Other places leaves and small

plants are preserved as carbon in thinly laminated friable beds and contain a large amount of gypsum indicating a slow deposition in shallow water. There are a number of places where fossil vertebrates are quite prevalent and in such places the assemblage of species indicate the habitat in which they lived.

From these fossils and the sediments in which they are found, one can, by careful study, reconstruct a part of the paleontological history. At one well known locality there is a small badlands pocket of Oligocene beds about three hundred yards in extent from which over one thousand specimens of fossil vertebrates have been collected. These sediments were laid down as a delta and contain coarse sediments as well as silt and volcanic ash. The specimens represent species of probably all the ecological conditions that existed in that locality. There are reptiles, birds, carnivores, tapirs, horses, camels, rodents, rabbits, marsupials, insectivores, or, in other words, a fauna which suggests habitats of shoreline, swamp, bench land, and forested areas.

Another, and more extensive, outcrop of Oligocene beds of the same geological horizon shows distinct lithological characters. It is a fairly coarse alluvial sandstone containing a variety of species which would normally inhabit a valley or piedmont. In the same pocket are thinly laminated fine grained beds containing a large amount of gypsum and the only fossils found are turtles, plants, and insects. In fact, all the fossiliferous outcrops show a distinct ecological relation between the matrices and the assemblage of fossils. These Tertiary beds of Montana, deposited under so many different conditions within the same area, make an ideal section for the study of Paleocology.

Spanish Botanical Expedition to New Spain from 1787 to 1804

The Anacardiaceae of Sessé and Mociño¹

FRED A. BARKLEY²

Unquestionably deserving of the highest rank among Spanish contributions to science were the various botanical expeditions to the Western Hemisphere in the last quarter of the 18th century. These expeditions mark an important epoch in the botanical history of the Americas, having been undertaken at a time when botany had received a powerful stimulus through the publications of Linnaeus. To students of the flora of Latin America the names of Peter Loeffling, Sessé and Mociño, Ruiz and Pavón, Dombey, and Mutis and his collaborators will always remain enduring landmarks.³

Outstanding among the explorations in Mexico, was the one sent out under the auspices of Carlos III. A commission of naturalists was sent to explore the area of Central America and to start the study of plants and their uses in Mexico. Casimiro Gómez Ortega, director of the botanical Garden of Madrid, nominated as director of this expedition, Martín Sessé y Lacasta. He was accompanied from Spain by José Longinos and the artist Juan Cerda. Added to the expedition from time to time in Mexico were Joseph (José) Mariano Mociño, Juan del Castillo, (Antonio?) Maldonado, and the artist Atanasio Echeverría.⁴

During the years 1795 to 1804 the expedition studied from the area of

Nicaragua and Guatemala to British Columbia, spending most of their energy in south central Mexico, and finally spent some time in Cuba and Puerto Rico.⁵

Martín Sessé, a Spanish physician and botanist, was appointed in 1787 as director of the scientific expedition to "Nueva España" and in the following year director of the botanic garden in Mexico City. During the period 1788 to 1798 he devoted much time to the examination and description of Mexican plants with the assistance primarily of José Mariano Mociño, who was appointed botanist of the expedition in 1791 and who made several botanical collections in various parts of Mexico and Guatemala.⁶ Sessé and Mociño returned to Spain in 1804. Sessé died in 1809 and Mociño ten years later.

The botanical results of Sessé and Mociño's investigations and explorations consisted of a herbarium, a set of about 1,400 colored drawings of Mexican plants, and various manuscripts including a "Flora de Guatemala," "Plantae Novae Hispaniae" and "Flora Mexicana."

Political troubles in Spain in the early part of the nineteenth century prevented the publication of Sessé and Mociño's works. In 1813 Mociño was obliged to take asylum in Montpellier, taking with him the manuscripts and

¹The basis of an address presented at the installation banquet of Alpha Rho chapter of Phi Sigma society at the University of Arkansas, May 23, 1945

²Research Assistant, Chicago Natural History Museum and Curator of the University of Texas Herbarium.

³cf. Ruiz, Barreiro, and Dahlgren.

⁴cf. Ramirez.

⁵cf. Lasegue.

⁶cf. Sprague.

drawings. These were lent to A. P. de Candolle, who together with other botanists based 17 new genera and 271 new species on them in his "Systema" and "Prodromus." When Mociño returned to Spain in 1817 he asked de Candolle, who had by that time moved to Geneva, to return the collection of drawings which he still had, on very short notice. Mociño had previously given 305 duplicate drawings to de Candolle and 71 drawings had been copied for the latter while still at Montpellier. The remaining drawings were copied in from eight to ten days by the combined efforts of about 200 people, 860 being copied completely and 109 in outline only. The whole collection was bound in several volumes, and is preserved in the Conservatoire Botanique at Geneva. The original Mociño set of drawings disappeared after his death. Ten sets of blue prints of tracings of the drawings in the Conservatoire Botanique on which new species and genera had been based were distributed in 1874 at cost price to the principal herbaria of the world by Alphonse de Candolle.⁷

A set of their plants, which formed part of Lambert's herbarium is now in the Herbarium Delessert, and some Mexican plants in Kew Herbarium and the British Museum marked "Herb. Pavon" were apparently collected by Sessé and Mociño, and came into Ruiz and Pavón's hands after Mociño had fled from Spain. While the Herbarium Delessert specimens were in Lambert's herbarium a number were described by David Don (*Trans. Linn. Soc.* 14: 573-577. 1825, 16: 169-303. 1833) and by George Don (*Gen. Syst.* 1831-1838.). The major part of the herbarium was incorporated into the general herbarium at Madrid Botanic Garden in 1820,

some duplicates having been distributed at that time. Some of the specimens were inserted into the general herbarium but the majority were stored.

The appearance of Hemsley's *Botany of the Biologia Centrali-americana* stimulated interest in Sessé and Mociño's works, and led to the publication in Mexico after a lapse of nearly a century, of two of their works, "*Plantae Novae Hispaniae*" and "*Flora Mexicana*." Both works were issued in instalments by Sociedad Mexicana de Historia Natural, as appendices to their periodical "*La Naturaleza*," during the periods 1887-1890 and 1891-1897 respectively. Second editions were published in 1893 and 1894 respectively by the "Secretaría de Fomento" of Mexico. (From page 125 of "*Flora Mexicana*" of the second edition thus appeared before the corresponding part of the first edition.)

Sprague believes that "*Plantae Novae Hispaniae*" included the plants collected in the first three years of work, while "*Flora Mexicana*" is interpreted as a collection of materials for a series of floras. The authors apparently did not give the title to the latter work.⁸ Since it contains numerous species from Cuba and Puerto Rico, which they visited late during the expedition, it was probably added to from time to time, and apparently was not intended to be published as a single flora.

The two works contain descriptions of several hundred species regarded as new by Sessé and Mociño and of many others which were identified by them as previously described species. Most of their identifications (to previously described species) was erroneous, since, writing before the founda-

⁷cf. de Candolle, Alph.

⁸At the time of the collections of Mocino and Sesse, "Mexico" was used to denote the valley of Mexico, rather than the political entity, as now used.

tions of floristic plant geography had been laid, they seem to have had little hesitation in identifying indigenous Mexican plants with species from far places in the world. No authorities are cited for the particular species and it is often difficult to determine whether the species were regarded as new by Sessé and Mocino, or were supposed by them to be identical with previously described species of the same name, with which they may or may not have been acquainted.

There are two major sources of error in interpreting localities concerned with the collection. The specimens labelled "Herb. Pavon" have been assumed to have come from Peru, and the fact that many specimens came from Puerto Rico and Cuba has been overlooked since the title under which the manuscript describing them was published as "Flora Mexicana."

Sprague has some excellent notes on the two works and a table of modern equivalents of the place names mentioned in the works.

In the interim between the time their works were written and the time they were published, many of the species which were described by them had been published by other authors.

All in all there has been much confusion concerning the plants concerned in the collections: place of collection, the interpretation of the original drawings, interpretation of the tracings of the drawings, interpretation of the descriptions drawn by de Candolle from the original drawings and manuscript, and from the misapplication of names in identification.

In 1934 Mr. J. Francis Macbride arranged for a loan of the Sessé and Mocino collection, both the material from the general herbarium and the undistributed material which had been stored in the basement of the Madrid

Herbarium, to the Field Museum Herbarium,⁹ with the understanding that it would be mounted, (the first sheet being returned to the Madrid Herbarium and the second sheet or fragment be retained by the Field Museum, and additional sheets, if any, be returned to the Madrid Herbarium,) and that they be studied. Mr. Paul C. Standley has been working over the material with assistance from specialists of various groups. When the set was received it was numbered, there having been 5489 collections. In some cases numbers have had to be divided since two species were mixed in the collection. Eight specimens were too fragmentary to place to family. Of the 141 families of seed plants included, all of the specimens of 54 families have been determined to species. Many of these represent the types of A. P. de Candolle's as well as Sessé and Mocino's species.

Mr. Macbride photographed all of the de Candolle drawings which were preserved in Conservatoire Botanique at Geneva, so that they too are available with the specimens.

Having previously had occasion to look into some Sessé and Mocino species, it was with considerable pleasure that I was asked to arrange the specimens into family groups so that the unstudied specimens might be more easily accessible for study.

In very few cases is the collection data for the specimens with them. Apparently the data is preserved in the library of the botanical garden of Madrid. With most of the specimens are notations, for the most part in the script of the period of Sessé and Mocino, and presumably largely their writing. These in all cases have been preserved with the specimens as they were mounted.

In order to see some of the complications which arise in working with

⁹Now the Chicago Natural History Museum Herbarium.

these specimens the author is giving in considerable detail some of the material in connection with the Anacardiaceae, with which family he is particularly interested. The author is indebted to Mr. Paul B. Standley and Dr. B. E. Dahlgren of the department of botany of Chicago Natural History Museum for access to the specimens as well as for information concerning the collections, and for the photographs which are reproduced.

There are six specimens of the Anacardiaceae in the Sessé and Mociño collections which are apparently unmentioned in either *Plantae Novae Hispaniae* and *Flora Mexicana*. These are, with the notations that were with the specimens, as follows:

970. *Anacardium occidentale* L.

"*Anacardium occidentale*. ic. 9-1. Arbor 20 ped. Mami dissun cinerei."

618. *Anacardium excelsum* (Bert. & Balb.) Skeels.

"4-1, Genus : : Spavel."

G. RHUS

² "*Tridentatum*. *Rhus scandens*, foliis ternatis, foliolis incanis serratis, serraturis tribus ad quinque. Suppl. p. 184. Ic. 196.

Frutex quælibet vicina corpora scandens.

Caulis ramisque ubique radicans.

Folia alterna, ternata, ovato-lanceolata, dentibus tribus aut quinque inæqualiter serrata, utrinque glabra, impari petiolata.

Petiolus communis teres, longissimus, subruher.

Racemi axillares, compositi; floribus albis, inodoris.

Habitat in calidis Novæ Hispaniæ regionibus et capite Bonæ Spei. Floret vere. *h*

Proprietas. Indigenæ credunt solo contactu exurere et cutim corrodere, unde *pessimam foeminam* aliquæ speciem hanc adpellant, miranda tamen illis experientia falsum id esse comprobatum est."

RHUS

Specimen 930* bears the label "*Rhus tridentatum*." This specimen is *Toxicodendron radicans* (L.) Kuntze.

(This is the type of *Rhus tridentatum* Sessé & Mociño., Pl. Nov. Hisp., 47, 1887, non Thumb. ex Linn. f., Suppl. 184. 1781.) (See also "*R. Villosum* below, and specimens 1382 and 1445, above.)

4939. *Schmaltzia Galeottii* (Standley) Barkley

"*Rhus quinquifolium* 9-3." (See, however, "*Rhus Metopium*," below.)

4941. *Schmaltzia vestita* (Loesen.) Barkley

"*Rhus Vernix*. *Rhus foliis pinatis integerrimis annuis opacis, petiolo integro aequali*. 9-3." (See, however, "*Rhus Succedaneum*," below.)

1382. *Toxicodendron radicans* (L.) Kuntze

"*Rhus scandens* 9-3" (See, however, "*Rhus tridentatum*" and "*Rhus Villosum*," below.)

1445. *Toxicodendron radicans* (L.) Kuntze

"*Rhus*. 9₁₁ 3₁₁." (See, however, "*Rhus tridentatum*" and "*Rhus Villosum*," below.)

The following is a treatment of the Anacardiaceae included in the two publications of Sessé and Mociño, with notes concerning the specimens from their collections which are to be associated with the descriptions.

¹ "G. RHUS

"*Tridentatum*. *Rhus scandens* foliis ternatis, foliolis serratis, serraturis tribus ad quinque. Supl. p. 184. ic. herb.

Caulis fruticosus, scandens.

Racemi axillares.

Flores albi.

Nascitur Yacapixtlæ et Quauhnhuacæ. Floret Augusto. *h*

Mexicanis Mescacuitztlī, vulgo *Caquilite*.

Credunt solo tactu intumescere, unde etiam *Malá Mujer* appellant; sed experientia falsum comperui."

¹ *Flora Mexicana*, ed. 2, page 76.

² *Plantae Novae Hispaniae*, ed. 2, p. 44.

* These numbers were the ones assigned to the specimens when they were sent to the Field Museum for study.

RHUS

³ "*Villosum*. *Rhus* caule pubescente, foliis ternatis, foliolis sessilibus ovatis integris, pubescenti villosis. Suppl. p. 183.

Suffrutex radicaulis e caule ramisque exsiliens rupes scandens.

Folia alterna, ternata, ovata, integerrima, glabra; lateralis obliqua, subsessilia; intermedium perfecte ovatum, petiolulatum.

Petioles communes basi latiores, subcarinati.

Racemi axillares.

Habitat in Ayahualtempam prope Chilapam et in capite Bonæ Spei. Floret Junio." ^b

Specimen 856 bears the notation "*Rhus Villosum*." It is *Toxicodendron radicans* (L.) Kuntze.

(This then becomes the type of *Rhus Villosum* Sessé & Mociño, Pl. Nov. Hisp., 47. 1887, non Linn. f., Suppl., 183. 1781.) (See also "*R. Tridentatum*" below, and specimens 1382 and 1445, above.)

³ "G. RHUS

Succedaneum. *Rhus* foliis pinnatis, integerrimis, perennantibus, lucidis; petiolo integro æquali.

Arbor Vernicifera spuria silvestris angustifolia. Kemph. Amoen. 794. t. 795.

Arbor quindecimpedalis, lactescens.

Folia alterna, impari-pinnata, foliolis undecim ad quindecim, ovatis, obliquis, utrinque glabris.

Petioles teretes, pubescentes.

Racemi axillares, compositi.

Flores albi, minimi, inodori.

Habitat in Chilapa, Sina. Floret Julio. ^{b'}

Specimen 854* of the Sessé & Mociño collection is labeled "*Rhus Succedaneum*." It is *Schmaltzia vestita* (Loesen.) Barkley. (See also specimen 4941 above.)

RHUS

³ "*Copallinum*"

No specimen has been found in the Sessé & Mociño collection so labeled. A specimen (4705) of *Bursera* aff. *velutina* Bullock bears the vulgar name "*Copalquihuitl*" which is the name of Hernandez applied to this plant. Except for the description of the leaflet margin their description fits specimen 4705 quite well. It seems very probable that this plant is a *Bursera* and there is no question that it is not *Rhus Copallina* L. or *Rhus lanceolata* Gray ex Engler in DC.

RHUS

⁴ "*Pterocarpus*. *Rhus* foliis pinnatis, foliolis diversiformibus, baccis alatis. Fl. Mex.

Arbor vigintipedalis, inelegans, caule tereti, glabro, epidermide subrubra exsiliens fœ de excoriata.

Rami alterni, majores diffusi; minores ascendentes, caule similes, infra foliorum exortum squamis stipularibus imbricatis, et cicatriculis foliorum deciduum scabri.

Folia in ramorum summitate alternatim conferta, impari-pinnata; foliolis quindecim circiter, alternis, non raro oppositis, distantibus, rhomboides aliis atque aliis lanceolatis aut ovatis, integerrimis, margine membranaceis, utrinque glabris.

Petiolus communis longissimus, basi clavatus, partiales breves, filiformes, subrubri.

Racemi axillares, foliis breviores, compositi, laxi. Flores albi, parvi, nectario subrubro germen ambiente, totumque fundum corollæ replente.

Baccæ compressæ, alatæ, emarginatæ.

Habitat in calidis Novæ Hispaniæ locis, ubi *Xiote* vulgo nuncupatur propter epidermidis exsiliationem; eo quippe nomine Mexicani excoriationes omnes herpeticas designare solent. Floret Octobri. ^b

Proprietates. Autumno et Vere succus ex qualibet incisione stillare dicitur, acris maxime et corrosivus."

RHUS

¹ "*Villosum*. *Rhus* caule pubescente, foliis ternatis, foliolis sessilibus, ovatis, integris, pubescenti-villosis. Suppl. p. 183.

Caulis fruticosus, octopedalis."

² "Rami ap. ce villosi.

Folia alterna, ternata, ovatis, acuminatis, integerrimis, sessilibus, villosis (in humidis glabris). Racemi axillares.

Flores albi.

Nascitur Quauhnhuacæ. Foret Maio. ^b Vulgo *Caquite*, de quo aserunt solo tactu intumescere ut præcedens, quod etiam falsum comperui."

"*Rhus Villosum*." It is *Toxicodendron*

RHUS

² "*Pterocarpus*. *Rhus* foliis pinnatis, foliolis diversiformibus, baccis alatis. Flor. Mex. L. H. N.

Arbor vigintiquinquepedalis, inelegans, caule tereti, ramis alternis, majoribus diffusis; junioribus ascendentibus, cauli consimilibus, infra foliorum exortum squamis stipularibus imbricatis et cicatriculis foliorum deciduum scabris.

Folia in ramorum summitatibus, alternatim conferta, impari-pinnata foliolis quindecim circiter, alternis, non raro oppositis, distantibus, rhomboideis aliis, atque aliis lanceolatis aut ovatis, integerrimis, margine membranaceis, utrinque glabris.

Petiolus communis longissimus, basi clavatus, partiales breves, filiformes, subrubri.

Racemi axillares, foliis breviores, compositi, laxi. Flores albi, parvi, nectario subrubro, germen ambiente, totumque fundum corollæ replente.

Baccæ compressæ, alatæ, emarginatæ.

Habitat in calidis N. H. locis. Floret Octobri. ^b Vulgo *Xiote* dicitur, quo nomine excoriationes omnes herpeticæ Mexicani appellare solent.

Autumno et hieme succus ex qualibet incisione copiosum stillare dicitur, acris maxime et corrosivus."

¹ Flora Mexicana, ed. 2, page 76.

² Flora Mexicana, ed. 2, page 77.

³ Plantæ Novæ Hispaniæ, ed. 2, page 44.

⁴ Plantæ Novæ Hispaniæ, ed. 2, p. 45.

The most common species of *Pseudosmodingium* in Mexico is *P. perniciosum* (HBK.) Engler. Plate 190 in A. DC., Calq. Dess. Fl. Mex. Moc. & Sessé, 1874, looks very much like that species. Whether there was another specimen of *Pseudosmodingium* from which the plate was made or whether it was poor delineation (it was one finished only in outline) would be hard to determine. In any case the original Sessé & Mociño collection (4938) bearing the notation "*Rhus pterocarpon*" is of a distinctly different species and one for which this is probably the only collection. It is thus the type of: *Pseudosmodingium rhoifolium* (DC.) Barkl. Ann. Mo. Bot. Gard. 24: 500. 1937. The synonymy for this species is: *Pseudosmodingium Pterocarpus* (Sessé & Moc.) Barkl. Ann. Mo. Bot. Gard. 24: 263. 1937.

Rhus pterocarpa DC., Prodr. 2: 84. 1825, in syn.

Rhus Pterocarpus Sessé & Moc., Pl. Nov. Hisp., 47. 1888, ed. 2, 45. 1893; Fl. Mex. ed. 2, 77, 1894.

Spathelia (?) *rhoifolia* DC., Prodr. 2: 84. 1825.

See Plate III.

The original description for this species was*:

"2. S? RHOIFOLIA, foliis circiter 6-jugis, foliolis ovatis acuminatis integerrimis.

5 in Mexico. *Rhus pterocarpa* fl. mex. ic. ined."

RHUS

² "*Fruticosum*. *Rhus* foliis simplicibus, ovato-oblongis, mucronatis. Fl. Mex. N. H.

Frutex tripedalis.

Rami alterni, teretes, fusco-ferruginei, villosi, punctis subrotundis inpersi.

Folia alterna, ovato-oblonga, mucronata, integerrima, subtus tomentosa.

Petioles brevissimi, superne depressi. Paniculae terminales, coarctatae.

Bractae ovatae, concavae, carinatae, membranaceae, deciduae.

Corollae albae, campanulatae.

Baccae.

Habitat in Horto Regio Mexicano. Floret Augusto. h"

No specimen has been found in the Sessé & Mociño collection so labeled. The description, except for the deciduous character of the bract, fits *Schmaltzia mollis* (HBK.) Barkley, and that seems the best interpretation of this description.

* de Candolle. *Prodromus* 2: 84. 1825, under *Spathelia*.

² *Flora Mexicana*, ed. 2, page 77.

⁵ "G. SPONDIAS.

"*Mombin*. *Spondias foliis petiolo communi compresso*. Sys. Veg. 357. Læfl. It. 209. Ic. 312.

Spondias purpurea. Sp. Pl. 3. p. 613.

Spondias (*Myrobalanus*) racemis sparsis, foliis multo brevioribus. Jacq. Amer. 139. t. 88.

Calyx. Perianthium quinque partitum, laciniis subrotundis, parvum, coloratum, deciduum.

Corolla. Petala quinque, oblonga, erecto patentia, subcampanulata.

Stamina. Filamenta decem, subulata, vix longitudine corollae, alterna breviora, antheræ oblongæ, erectæ.

Pistillum. Germen ovatum; styli quinque, breves, distantes, erecti; stigmata simplicia.

Pericarpium. Drupa oblonga, punctis nonnullis ad apicem notata.

Semina. Nux ova to-oblonga, lignosa, fibrosa, subangulata, numero loculamentorum varia.

Arbor inelegans, raro vigintipedalibus longior.

Rami alterni, inordinati, a racemorum foliorumque lapsu scabri.

Folia alterna, sæpe in apice ramorum conferta, pinnata, maturescente fructu decidua; foliola septemdecim ad quinque supra viginti, subovata, integra, nitida, breviter petiolata.

Racemi simplices, in ramis quandoque in trunco dispersi, pauciflori, vix semispithamei.

Flores parvi, rubro purpurei.

Drupæ oblongæ, raro rotundatæ, cortice pro temporis ratione coloribus varia.

Habitat in Quauhnhuaca, aliisque Americæ locis Floret Decembri. *h*

Œconomia. Drupæ *Ciruelas* vulgo adpellatæ tum recentes, tum exsiccatae avidè in Nova Hispania eduntur."

In the Sessé & Mociño collection were four specimens of *Spondias Mombin* L., under the following numbers and with the following notations with the specimens: 1127; 1126, "*Spondias mirabolanus* 10-5"; 1125, "*Spondias acuminata* 10-5"; 4702, "*Schinus integrifolia*. Flores hermaphroditi octandri. C-22-10." It seems most probable that the one reference in *Plantae Novae Hispaniae* and both in *Flora Mexicana* are assignable to this species.

⁷ "G. SCHINUS

Molle. *Schinus foliis pinnatis, foliolis serratis, impari longissimo, petiolis æqualibus*. Hort. Cliff. 483.

Lentiscus Peruviana. C. B. P. 399.

Habitat in Nova Hispania et Europa. *h*

Proprietas. Resina ab hac arbore extillans Foeniculi odorem habet, saporem vero acrem, subdulcem et cum amaritudine quadam adstringentem. Nucleus ventriculum roborat corporaque etiam humiditate tumefacta exsiccatur. Folia lotionibus addita oedemata dissolvunt, ore commansa gingivas dentesque firmant, atque oris ulceribus medentur, ut refert celeberrimus Hernandus. Mex. 54."

Specimen 4694 bears the notation "*Schinus Areira* 2-2-90" and is *Schinus Molle* L.

SCHINUS

⁷ "*Angustifolius*"

⁸ "*Occidentalis*"

⁶ "G. SPONDIAS

Terebinthinaceae. *Spondias petiolo communi æquali, foliolis obtusis; floribus racemosis*. Fl. Mex.

Statura et habitus *Myrobalana*, a qua tantum differt foliolis oblongis, obtusiusculis, fructibus lævibus, acido-subdulcibus et resinosis. *Terebinthinæ* sapore præditis.

Myrobalanus. *Spondias petiolo communi superne compresso, carinato, floribus racemosis*. Fl. Mex.

Arbor excelsa et frondosissima.

Rami alterni, patentes, cinerei, apice cicatriculis foliorum tuberculati.

Folia alterna, impari-pinnata, foliolis 15 circiter, oblongo-ovatis, acuminatis, nitidis, altero baseos latere breviorè angustioreque.

Petiolis teretes, basi clavati, supra folia superne carinati.

Racemi terminales, maximi, compositi, pedicellis subtrifloris.

Drupæ prumiformes, luteæ, dulciusculæ.

Habitat in Cordova, ubi vulgo Xobo audit, editur ab indigenis. Floret Junio."

⁹ "G. SCHINUS

Hexander."

"*Angustifolius*."

¹⁰ "*Occidentalis*"

⁵ *Plantae Novae Hispaniae*, ed. 2, p. 70.

⁶ *Flora Mexicana*, ed. 2, p. 118.

⁷ *Plantae Novae Hispaniae*, ed. 2, p. 160.

⁸ *Plantae Novae Hispaniae*, ed. 2, p. 161.

⁹ *Flora Mexicana*, ed. 2, p. 232.

¹⁰ *Flora Mexicana*, ed. 2, p. 233.

Specimen 4696 bears the notation "*Schinus angustifolia*. *S. copallifera*" and specimen 4690 bears only the notation "*Schinus copallifera*." Since of the sixteen sheets noted as "*Schinus*" only 4694 and 4702 (as noted above) do not belong to *Bursera* and also from the descriptions of the two species, I believe they are without doubt to be regarded as referring to species of the genus *Bursera*.

RHUS

* "*Metopium*. *Rhus* foliis pinnatis quinatis integerrimis ovatis, subtus tomentosis. Fl. Mex.

Rhus foliis pinnatis quinatis integerrimis subrotundis glabris. Amœn. Ac. 5. p. 395.

Arbor quindecimipedalis, ramis diffusis, junioribus pubescentibus, scabrisculis.

Folia pinnata, foliolis quinque ovatis, integerrimis, subtus tomentosis, impare elliptico, majore.

Petoli communes basi latiores, subcarinati.

Racemi axillares.

Habitat in Ayahuatempam prope Chilapam et in capite Bonæ Spei. Floret Junio. h"

Specimen 855 bears the notation "*Rhus Metopium*." This specimen is *Schmaltzia Galeottii* (Standley) Barkley.

(This specimen then becomes the type of *Rhus Metopium* Sessé & Mociño. Pl. Nov. Hisp., 47. 1887, non L., Syst. Nat. ed. 10, 2: 964. 1759.) (See also specimen 4939, above.)

* "*Tetlatziam*. *Rhus* foliis pinnatis multijugis, foliolis oblongis incis. Fl. Mex. Ic. 217.

Arbuscula decempedalis.

Rami alterni, rubentes, scabri, apice fere nudi.

Folia alterna, in apice ramorum conferta, impari pinnata, juvis circiter sexdecim, foliolis alternis oblongis, incis, rugosis, infimis minimis.

Petoli communes teretes, v. llosi.

Racemi axillares, foliis dimidio breviores.

Flores albi, parvi."

* "*Bractææ* lineares, persistentes, alæ subrotundæ, piloso-hirsutæ.

Habitat in Mazatlán et Chilpanzingo. Floret Junio. h"

This species is represented by two numbers in the Sessé and Mociño collection: 1020, having no notations with the very scant specimen, and 4940, bearing the notation "*Rhus eriocarpon*," an ample collection. 4940 must be considered the type of *Rhus Tetlatziam* Sessé and Mociño.

Considering the controversy over the interpretation of *Rhus filicina* [Sessé and Mociño ex] De Candolle, Prodr. 2: 67. 1825, as *Actinocheita filicina* Barkley and as *Bursera bipinnata* Engler in DC., Monog. Phan. (cf. Barkley 1937, Bullock 1937, Barkley & Reed 1939, and Bullock 1939) a search was made through all specimens of families whose species are often confused with species of Anacardiaceae. Of these the only ones that need be considered are the four specimens of bipinnate-leaved *Bursera*, and these only because of the previous interpretation of *R. filicina* as *Bursera bipinnata*. These four specimens are undoubtedly of the same species. One, 4691, is minutely pilose, the leaves are barely developing and are exceeded by the inflorescences by twice their length.

* These numbers were the ones assigned to the specimens when they were sent to Field Museum for study.

² Plantae Novae Hispaniae, ed. 2, p. 44.

⁴ Plantae Novae Hispaniae, ed. 2, p. 45.





PLATE II



PLATE III



PLATE IV

Another, 4693, is in flower but has mature leaves. The other two have fruit and mature leaves. All four specimens have thin, glabrous branches. All have decidedly deltoid leaves with the leaflets distinctly interrupted. In view of this situation and the similarity of the specimen (4940) with the drawing—although presumably the first drawing was made in the field—there seems no alternative but to assume that this specimen was associated with the drawing and with the original description which De Candolle had available when he wrote his description—and that therefore this specimen must be assigned as the type of *Rhus filicina* [Mociño and Sessé ex] DC, *ibid*, the original description for which was:

"1. Foliis impari-pinnatis.

3. *R. FILICINA* (fl. mex. ic. ined.) foliis 7-9-jugis, petiolo nudo, foliolis sessilibus pinnatifidis pilosis oblongis, lobis obtusis pilo aristatis. 5 in Mexici montibus. Ex fl. mex. mss. dicitur *Tetlazier* sed non est *Tetlacian* Hern. mex. 153. Fructus pilis violaceis hirtus."

The synonymy then of *ACTINOCHEITA FILICINA* Barkley, is

Rhus Filicina [Mociño & Sessé ex] DC., *Prodr.* 2: 67. 1825.

R. potentillaefolia Turcz., *Bull. Soc. Nat. Moscou* 31: 469. 1858.

R. Tetlazier Sessé & Moc., *Pl. Nov. Hisp.*, p. 47. 1887; ed. 2, p. 44. 1893.

Actinocheita potentillifolia Bullock, *Kew Bull. Mis. Inf.* 1937: 441. 1937.

Bursera bipinnata (Schlecht.) Engler in DC., *Monogr. Phaner.* 4: 49. 1883, in part, as to *Rhus filicina* in syn.

Toxicodendron potentillifolium O. Kuntze, *Rev. Gen. Pl.*, pt. 1, p. 154. 1891.

See plates I, II and IV.

COMOCLADIA

⁹ "*Dentata*. *Comocladia* foliolis oblongis, dentatospinosus.

Arbuscula sesquiorgyam longa, trunco simplici, tenui, fusco-cinereo, apice ferrugineo-tomentoso.

Folia imparipinnata, foliolis 19, oblongis, acuminatis, dentatospinosus, membranaceis, transverse venosis, venis alternatim spinescentibus, utrinque glabris, subsessilibus, inferioribus gradatim minoribus.

Petiolis sesquipedales, teretes, villosi.

Racemi axillares et terminales, compositi, racemulis alternis, patentibus.

Bractæ ad basim racemorum, cordatæ, acuminatæ, concavæ, erectæ, ferrugineo-tomentosæ, scariosæ, deciduæ; racemulorum subulatæ, patentæ.

Flores alternatim in globulum conferti, minimi, patentæ.

Corollæ atro-purpureæ, persistentes.

Receptaculum 5-angulare.

Reliqua ut in caractere.

Habitat in montibus de Zoa-Alta ubi vulgo *Carasco* nominatur. Floret Aprili.

Proprietas. Succus totius plantæ acris cutem denigrat."

⁹ Flora Mexicana, ed. 2, p. 14.

Specimen 406, "*Comocladia dentata* 3-1. No. 205₁₁" is *Comocladia glabra* var. *acuminata* (Sessé & Mocifño) Urban. This becomes the type collection of *Comocladia acuminata* Sessé & Mocifño ex DC., Prodr. 2: 65. 1825.

COMOCLADIA

⁹ "*Illicifolia*. *Comocladia* 6 foliolis, subrotundis, tridentato spinosis.

Statura et habitus præcedentis a quæ tantum differt figura et spinis foliorum.

Habitat in calidioribus montibus de Coamo. Floret Maio. h"

Specimen 407, "*Comocladia* n. *illicifolia* Swartz. Statusa et habitu simillie oematae." is *Comocladia Dodonaea* (L.) Urb. The specimen undoubtedly comes from Puerto Rico, since there is considerable variation in the pubescence of this species over its area, and this specimen has that characteristic of Puerto Rico.

⁹ Flora Mexicana, ed. 2, p. 14.

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PLATE I

Reproduction natural size from *plate 189* of A. DeCandolle's 'Calques des Dessins, Flora du Mexique, de Mociño et Sessé'. (The margin of this copy from the blueprint has been trimmed and the "189" replaced so that the copy could be reproduced natural size.) The original in the Library of the Missouri Botanical Garden is a blueprint of the duplicate copy (tracing) of *plate 189* of Sessé and Mociño given to Dr. Asa Gray by DeCandolle and one of the blueprint sets of the Sessé and Mociño tracings distributed under the above title by A. DeCandolle. It is listed in the "Enumeration d'après l'ordre des numéros" as "*Rhus filicina* 2. p. 67." For many years the tracings and blueprints of them were the only clues to the identity of the Sessé and Mociño plants described by DeCandolle for botanists in this country. Reference to the text will show that the author's statement (Barkley, Fred A. *Ann. Mo. Bot. Gard.* 24: 6. 1937.) "As it is probable that the original material on which the species was founded no longer exists, *Actinocheita filicina* must rest on the Mociño and Sessé plate," no longer holds, since the original collection has appeared and is available for study. (Photograph through the courtesy of the Chicago Natural History Museum.)

PLATE II

A copy of the photographic reproduction of the original drawing of *Actinocheita filicina* in the DeCandolle collection. Comparison with plate I shows that even the presumably hurriedly drawn original is far superior to the tracings. The photographs of the originals are now available in this country. (Photograph through the courtesy of the Chicago Natural History Museum, cut through the courtesy of the American Midland Naturalist.)

PLATE III

Pseudosmodium rhoifolium (Sessé & Mociño ex DeCandolle) Barkley. This specimen apparently constitutes the only collection of this species. The outline drawing in the DeCandolle collection is very poor, and looks more like *Pseudosmodium perniciosum* (HBK.) Engler.

PLATE IV

Actinocheita filicina (Sessé & Mociño ex DeCandolle) Barkley. This specimen closely resembles the Mociño drawing, and fits the original description of *Rhus Filicina* of DeCandolle.

Tinea Capitis

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One of the less important effects of World War II is the increased incidence of tinea capitis throughout the United States almost reaching epidemic proportion. This is believed due to the migrations of war workers and their crowded living conditions.

Tinea capitis, or ringworm of the scalp, may be caused by a variety of fungi. The commoner causative organisms include the microsporon audouinii, microsporon lanosum, trichophyton gypseum, and trichophyton violaceum. The achorion schoenleinii produces a specific tinea-like condition called favus. The disease is spread by personal contact or by indirect contact such as infested hats or other apparel or furniture. Indeed, the backs of movie theatre seats play a stellar role in disease transmission as relays of children rest their tired heads after the thrilling rescue of the horse opera heroine. Animals, especially dogs and cats, may be a potential source of *M. lanosum* or *T. gypseum* infection.

The fungus dips into the hair follicle as it grows and soon invades the hair shaft. This causes the shaft to become brittle and sooner or later a round, grayish patch of broken-hair stubble marks the tinea lesion. There is little or no itching. Occasionally, secondary pyogenic infection develops producing multiple abscesses with crust formation. This is termed kerion and may involve the entire scalp.

In diagnosis, use is made of filtered ultra-violet rays which causes certain of these fungi to fluoresce. The microsporon produce a brilliant green, the trichophyton endothrix (violaceum) a dull blue, the achorion schoenleinii a dull green and the trichophyton ectothrix (gypseum) no fluorescence in the darkened room. Previously, the source of these rays (Wood's light) necessitated a costly apparatus having a mercury vapor tube and a special Corning glass filter. The Westinghouse Company has recently developed an inexpensive lamp bulb called the Purple-X for use in fluorescent mineral industries. This bulb can be placed in any ordinary lamp socket and produces ultra-violet rays of 3000-3400 A° wave lengths which is quite adequate in detecting the fluorescence of the infected hair shafts. The Purple-X should remain lit for only seconds at a time since the glass may shatter because of the extreme heat that develops.

Further identification of the lesion can be obtained by placing a fluorescent hair on a glass slide, adding several drops of 10 per cent sodium hydroxide solution and a cover-glass. After heating the preparation gently for 5 seconds, it is examined microscopically under low power with the condenser diaphragm closed as far as possible. A normal hair shows a clear, waxy, translucent, clearly delineated shaft; an infected hair shows the shaft to be fuzzy, disrupted, ground-glass in appearance and the presence of spores.

Determination of the species by culture is essential for the selection of the proper treatment. The diseased hair is placed in a test-tube containing a slant of Sabouraud's agar medium. If kept at room temperature, *M. audouinii*

covers the slant in 2 or 3 weeks with a grayish-white thin colony having a scanty aerial growth. Pigment on the under-surface of the colony is red-brown or yellow-tan. *M. lanosum* grows more rapidly covering the slant in 10 to 14 days. This growth is thick, abundant and fluffy, having a surface color of buff-tan and a characteristic bright lemon-yellow color at the base.

Many medicinal agents have been used in treatment of tinea capitis making "Clinic Day" reminiscent of an Easter Egg parade what with scalps painted purple with Gentian violet, orange with merthiolate, red with metaphen, yellow with ammoniated mercury, ad infinitum. Medication is successful in 1 to 4 months in those fungous infections ordinarily transmissible to animals. Unfortunately, it has been estimated that 90 per cent of the infections in the present epidemic are caused by the *M. audouini* which is resistant to the above treatment. It is a curious fact that almost all tinea capitis ceases at puberty and that it rarely occurs in adults. With this in mind, various investigators have used estrogenic substances internally and externally in treatment. Satisfactory results were obtained in *M. lanosum* and other fungous infections but again was ineffectual for *M. audouini*.

X-ray therapy, first suggested in 1897 by Freund, remains the only safe method for treating ringworm of the

scalp caused by *M. audouini* and other instances of resistant infection. Since tinea capitis is actually an infection of the hair shaft and follicle and not of the skin of the scalp, cure should be obtained by removal of the hair. This has been attempted by various depilatories and by manual removal but to no avail. Administration of thallium salts will produce epilation and cure, but since the drug may produce permanent baldness, or alopecia, and may cause systemic damage, it is used rarely and only when X-ray is not available or feasible. X-irradiation in the hands of an expert will produce complete baldness in 3 to 4 weeks. During this time, the patient is instructed to wear a washable cap day and night to prevent spreading the disease or infesting furniture in the home. The latter is important since re-infection may occur following the return of the hair. Fine, silky regrowth of hair usually occurs 2 to 3 months after epilation is complete and precedes to a normal full growth. The old hazards of alopecia and incomplete epilation with its resultant failure of cure have, for all practical purposes, disappeared with the advent of X-ray machines that can be accurately calibrated and with treatment technics that are scientifically standardized. On occasion, much to everyone's surprise, a patient's (usually a boy's!) hair returns curly following X-ray epilation. Irradiation, however, is not advised for this purpose.



The Walrus Hunt

By ARTHUR C. TWOMEY

(Taken from Carnegie Magazine)

(This narrative describes the hunting expeditions for polar bears and walrus by Mr. Twomey and Mr. Doult.) One of the objects of the expedition to the Belcher Islands was to collect walrus for exhibition in the Museum. Until the arrival of the trim little motor boat Dorothy, chartered from the Hudson's Bay Company by Lawrence Woods and Colonel Paul C. Hunt, we had no means of hunting the animals, which supposedly lived on the long chain of uncharted islands north of the Belchers. When the Dorothy arrived, with our wives, Mr. and Mrs. Woods, and Colonel Hunt on board, everything was set for a walrus hunt. Not only had these two men chartered the boat, but by financial aid and encouragement, and by interesting other friends of the Museum in the expedition, they made this part of the trip possible.

On August 16 we sailed out of Omarolluk Sound, with Lukasee, our Eskimo guide, at the wheel. Curious young seals bobbed up here and there to look at this strange motor-driven intruder. At Eskimo Harbor the natives lined along the shore, eager to shake hands and to greet us with cheery "chimos." Kutuk, one of the best walrus-hunters among these Eskimos, hurried about making ready the harpoons, and inflating the seal skins that are used on the end of the harpoon line to keep it afloat until the stricken walrus can be hauled in.

These primitive people, dressed in sealskin and eider-duck parkas, invited us into their tupeks, or tents. Lukasee withdrew an old fiddle from its home-

made sealskin case and tuned it by turning the keys with his teeth. But before he began to play the familiar "Jesus Loves Me," he courteously offered it to us. Kenora, another Eskimo, proudly demonstrated a rickety old graphophone, while others entertained with clever bone games they had invented.

As the sun dipped below the western horizon, we turned reluctantly toward the Dorothy, which lay at anchor in the sheltered inlet. Moonlight flooded the water, causing the bits of phosphorus to sparkle like the jewels of the great Moguls of India. Northern lights fell in curtains from the very zenith of the heavens, flashing out across the sky in long, filmy streamers that appeared and vanished at frequent intervals.

The next morning we continued our northward course making a brief stop at a small Eskimo encampment at the north end of Johnson Island. The Eskimos here were the most primitive we had yet encountered; in fact, they had seen few white men and no white women, so that our wives proved to be curiosities. Their clothing was also made of the skins of the seal and eider duck, their unruly hair had never been exposed to a comb, nor had they a speaking acquaintance with soap. They lived in low tupeks constructed of sod rather than canvas, and cod heads as well as the remains of seal and walrus were evidence of their daily repast.

That evening we anchored in a little bottle-shaped harbor at the north end of the Island. We went ashore to explore this remote, rocky land, worn

smooth by glaciers, and found that fireweed, cotton grass, dwarf willow, and a few lichens grew in the more sheltered places where a little sod had been left. As we walked across the Island, snowbirds and purple sandpipers flew ahead of us. Back on the boat, our guides assured us that we would see walrus on the morrow.

We made an early start on the morning of August 18. Our course to the Sleeper Islands, which lie off the main Belcher group, led us almost due northeast. As we sped past the numerous reefs, a peculiar spray suddenly loomed up ahead. Kutuk shouted, "Ivik, Ivik!" The Eskimos hurriedly began to blow up the sealskin bladders and get the heavy harpoons ready. The engineer put the big motor in high. The herd of walrus, consisting of two medium-sized bulls and three cows, were soon overtaken, and a desirable specimen was selected for our group. Lukasee threw a harpoon, but the Eskimo had failed to sharpen the spearhead, and the dull point could not penetrate the heavy, leathery hide. A second, however, sank deeply, and the animal was quickly dispatched by a shot from a rifle. Later in the afternoon we got another specimen. That night, as we dropped anchor in the only harbor on the North Sleepers, we could hear the elephantlike grunts and bellows of walrus.

Hardly a breath of wind disturbed the placid waters as the Dorothy moved out of the little harbor the next morning. A low, rocky island could be seen in the distance, with one or two massive walrus heads silhouetted against the sky. As the boat drew nearer, the whole island seemed to move, at first slowly, then becoming a seething mass of bulky, brown forms that slipped into the sea. Moving forward into the midst of the great herd, we could see that the

water was fairly alive with walrus. Bulls bellowed and coughed; cows and calves dived and rushed away from the stern of the boat. Our animals were carefully selected, and, as Kutuk deftly threw his harpoon, our prey was soon secured. Inflated seal skins marked the position of our specimens, and in an unbelievably short time, we had killed our entire group of walrus. Black water ahead warned us that a wind was rising. We swung about and quickly picked up the lines to haul in the animals, while the Dorothy made for the little harbor.

With a block and tackle, the huge animals were dragged ashore from the water to be skinned. Though it was bitterly cold, Lukasee and Kutuk rolled up their sleeves to the elbows and began stripping the skins from the massive carcasses with their long, sharp knives. Then they cut great chunks of meat from the bones, for summer hunting had been poor in the little settlement whence these men came, and their families were badly in need of additional food.

Before leaving for Eskimo Harbor, we decided, as a last thrill, to run over to the Walrus Rock to see if the great herd had again gathered. This time we hunted only with our cameras. As we approached, the island again became alive; there was the same wild, rolling stampede. Over all hung the pungent odor of the herd. In an attempt to get out of our way, the animals separated into groups; calves frantically climbed upon their mothers' backs, and the bulls roared forth their challenges, which also served to unify the fleeing groups. At times they looked like torpedos with ponderous flippers propelling them along underneath the surface of the clear, salty water. Within a short time many of them were running for the open sea or seeking the shelter

of the shoals as they fled from the intruding boat. Soon only an occasional black head and a sheet of white spray were visible as we nosed about toward the South. We got all the pictures we wished, so we started back down the coast.

The two Eskimos took turns at the wheel. No chart or compass was necessary to guide them past the many islands along our course. At Eskimo Harbor the whole settlement was on shore to greet us, awaiting their portion of the kill. Meals were hastily prepared, and the large juicy steaks, eaten raw or barely dipped into boiling water, tasted good to all of us, hungry as we were.

The Eskimo women now began their part of the work on the walrus skins. Using oodaloos, efficient little knives shaped like a half moon, they pared the immense skins down to about a quarter of an inch in thickness, then spread them over a smooth-worn rock and scrubbed them with brushes and yellow soap until they were clean and free from grease.

In the meantime the men of the village had gathered dry moss to stuff and dry the skins. One man crawled inside the mammoth, damp hides and packed the moss in as it was passed to him. Soon the pelts took on the appearance of grotesque, inflated balloons. The work of the Eskimos was now finished. It was our responsibility to see that the specimens safely reached the Carnegie Museum, to be mounted for exhibition.

We bade goodbye to our friends who had so diligently aided us in our quest. Although we appreciated their help, we felt a thrill to know that we were starting on our homeward journey.

By late afternoon we were entering Omarolluk Harbor, in front of the Belcher Islands post buildings. Our stay

their was brief, for Captain Robbi, the skipper, was eager to get his boat safely across to the mainland before bad weather made traveling impossible.

At daybreak we left Bob Cruickshank, manager of the Hudson's Bay Company post at Belcher Islands, and by ten o'clock were skirting the southern end of the islands. Meeko, the Eskimo pilot, soon had the boat clear of the Belchers and out in the open sea, and, as we sailed along, he sang softly in his own language. He was singing a prayer, a prayer to the great God of the universe to speak to the wind and the waves, to keep them quiet during our crossing, for a heavy sea had begun to toss the little craft about. Gradually, the low, rocky headlands vanished below the western horizon, and the high mainland hills appeared. Before nightfall we entered the mouth of Great Whale River and docked at the Hudson's Bay Company pier. How good it seemed to be back in a country where there were trees! And how different the little post looked in its summer setting.

Progress down the coast from Great Whale River was fairly rapid. At Seal River we anchored the Dorothy and paddled up to the third rapids of a virgin river where unparalleled trout fishing had been reported. There we found that the reports had not been exaggerated. The fish barely waited for the fly to touch the water before several of the big fellows were vying with one another to get on the line. But our fun was short-lived, for a sixty-mile gale descended upon us with lightning rapidity. We started back, but it was impossible to bring the little dory down the river. The wind was so strong that it was with great difficulty that we reached the little trading post of George Papp, which fortunately for us, was located on the point. There

a warm fire dried our soaked clothing while the storm raged outside. It was not until morning that the rain and wind had subsided enough for us to reach the Dorothy.

At Fort George we were delayed again for three days because of heavy storms. On the fourth day the wind died down, and we started out toward the southwest for the Twin Islands, hoping that we might be fortunate enough to see and collect several polar bears for the Museum. By noon, Spencer Island—not more than two miles long and about a mile wide—appeared. The island sloped gently from the shoals on its northern shore to a high and abrupt cliff that dropped off suddenly into the sea on the southern edge. Before the boat reached the shore, a large white polar bear scampered off over the ridge as fast as he could travel. We altered our course and swung about to the south shore, where to our surprise, a big female and her two cubs spied us, paused, then galloped wildly over the hill. The old bear would stop and rise up on her hind legs to get a better view of this strange intruder; but when the two cubs tried to follow her example, the mother bear would cuff them soundly.

We went ashore and split the party, Mr. Woods and Mr. Doult going on one side of the Island, while Colonel Hunt and I went off on the opposite side. From the sandy beach we climbed up over the steep moss-covered slope where we found fresh bear beds—dish-shaped hollows that pitted the hillside. From the number of these beds we were not too surprised to come upon a bear sound asleep. We approached from behind a ridge to within twenty-five yards of the bear. As we watched from above he raised his head, took a casual glance around, yawned, and then flopped back into a light sleep. The

whir of the movie camera suddenly caught his attention, and a very excited bear leaped to his feet and dashed for the water below. By this time the female and the cubs had made their way across the island. They trotted by us, the mother bear herding her two cubs ahead until she reached the water's edge. There, with her offspring, she plunged into the sea. And now we feel capable of saying that we have settled that age-old problem that has been baffling scientists and laymen alike for these many years, "What was it that the bear went over the mountain to see?" Our answer is, "The bear went over the mountain to sea!" And the sea, taking them in its friendly arms, hid them from our view.

Boarding our ship again, we set sail, expecting to make the South Twin Island by nightfall. The sun was beginning to color the sky with a rich coppery tint by the time we reached Walter's Island, a mere dot on the map. As we approached the Island, we could see three huge white forms that first appeared to be rocks. But rocks do not move and we knew that they must be polar bears. They were quietly feeding on the bearberries and blueberries that covered the southern slope.

The dory was lowered over the side and five of us clambered into it. On shore, huge tracks in the sand were evidence of the noble inhabitant, the king of the north—the polar bear. We approached within rifle range and the guns of Colonel Hunt and Mr. Woods quickly dispatched two of the animals. We hurriedly dragged the large carcasses out to the dory and soon had them hanging along the sides of the ship.

That night we anchored in the only harbor on the Twin Islands, and the next morning Robbi took the quickest route for Moose Factory reaching Charl-

ton Island in the early evening. We stopped for an hour or so to explore the southern tip of the Island, but Robbi was eager to keep on, for we were just about a ten-hour run from Moose Factory, and if a storm should descend upon us now, it might detain us for a week or more right here within a stone's throw of our destination. And so, by the light of a full moon, Robbi steered the Dorothy through the night. At about four the next morning we idled just outside the Moose River until we had the tide with us. Then, on the flood,

the little-ship nosed her way up the six-mile stretch of water to her home pier. The water was like glass, there was not a breath of air, nor a cloud in the sky. Off to the south, on the left bank, the little settlement of Moosonee nestled in the deep greens of the forest. How different it looked now compared to that January morning when our plane lifted from the frozen surface of this same river. We were back again, our objective attained, and were prepared to start for home.



Chapter News Letters

Zeta

—University of Wisconsin

Following the precedent set last year, Zeta Chapter held only one initiation banquet this year on February 22. A delicious dinner, an enjoyable and stimulating program, and a large attendance rewarded the efforts of the banquet committee.

Professor Robert H. Burris, acting as toastmaster, had just the right amount of humor in his introductory remarks to set the program rolling. The Chapter President, Robert E. Mather, conducted an impressive initiation ceremony for fifteen graduate students and one faculty member. Four transfer members were also introduced. Julian Oyaas, of the Dept. of Biochemistry, made the response on behalf of the initiates. Our National President, Professor Leon J. Cole, discussed the functions of Phi Sigma in wartime. The entire group wholeheartedly enjoyed several French-Canadian ballads sung with humor and gusto by our talented guest baritone, Reverend John Clayton.

The highlight of the evening was the address, "Benedict Prevost and the Germ Theory of Disease," delivered by Professor George W. Keitt, chairman of the Dept. of Plant Pathology. Zeta Chapter of Phi Sigma Society is proud to add the name of Professor Keitt this year to the roll of distinguished biologists who are honorary members of the chapter.

Professor Keitt, through his discussion of the life and background of Benedict Prevost (1755-1819), led up to a critical analysis of the real contribution to science made by Prevost. Over half a century before the germ theory of disease was proved and widely accepted, Prevost clearly demonstrated parasitism of plants by microorganisms. This sincere and humble investigator carried on his surprisingly modern ex-

perimentation for ten years before finally publishing his memorable paper in 1807. In this paper he concluded that an internal parasitic fungus is the cause of bunt of wheat. With this knowledge he developed a practical method for controlling this disease by the treatment of the seed. Prevost was one of those true scientists whose lucid thinking permitted him to appreciate the workings and counterworkings of Nature much more fully than his contemporaries. Unfavorable commentary coupled with his extreme modesty unfortunately hindered the acceptance of his theories to the extent that today he can be called one of the forgotten men of science.

ROBERT R. SPITZEN
Editor.

Upsilon

—Miami University

On January 19, 1945, twenty-four candidates were initiated. The new initiates are:—Alfred Vogeley, J. Fisher Stanfield, Herbert Beckers, Ted Buka, Sanford Weissman, Joseph Tillotson, Jeanne Schiller, Robert Roy, Doyle Roebuck, William Reischman, Eleanor Pence, Doris Newell, Lois Murphy, Floyd Miller, Janet Luthman, Charlotte Leighton, Ida Lieurance, Eleanor Landon, Elizabeth Crosby, Natalie Covert, Sarah Clevenger, Martha Church, Milton Byers, and Louise Brough.

Following the banquet Dr. P. S. Crowell lectured on "Bird Banding." His movies showed the actual banding of terns and gulls done as an experiment by Dr. Crowell and his mother off the coast of Massachusetts.

February 8th Lt. Marcene Hefner of the Women's Army Corps talked to our chapter about Physical Therapy for returning wounded soldiers. Several of our members signed to become WAC after graduation.

NORA WRIGHT
Corresponding Secretary.

Alpha Epsilon

—University of Pittsburgh

It is with deep regret that we report the death of one of our most faithful members, Glenn Burig. He was principal of the Fayette City High School.

During the last part of last year and so far this year the chapter dinners have been held at the Army Mess Hall located in the sub-basement of the Cathedral of Learning. The members attending have enjoyed eating from the Army style trays. It is a novel experience for the civilian. Last April Dr. LeRoy Kay showed colored pictures of his trip to Montana. In May the group visited the Buhl Planetarium. The Science Fair, which was in progress was especially interesting. The microzoo as well as the Sky Show held added attraction for the group. After the Sky Show many of the members went up to the observatory to take a look at the real stars through the telescope.

Two meetings were held so far this year. At the October meeting Dr. R. J. Simon, pathologist at Mercy Hospital, Pittsburgh, spoke on "Learning From the Dead." A party was held October 27th for prospective members. We are hoping to have a group to initiate by December 21st.

Alpha Omicron

—Marquette University

Alpha Omicron chapter has a very interesting program outlined for the year.

"The Transmutation of Society in Tonga" by W. C. McKern, Director, Milwaukee Public Museum.

A Field Trip to the Quaking Bog.

"Problems in Seed Analysis," Ruth Gass, Courteen Seed Company.

"Stomatal behavior of Begonias and infection by *X. begoniae*," by Eugene Kitzko.

"Techniques of Systematic Serology," by Jos. G. Baier, Prof. Univ. of Wisc., Milw.

"Effects of Adrenalin and Salt on Pituitary and Reproduction," Sister Mary Roberdetta, Holy Angels.

"The Foulgon Technique of Staining Parasitic Worms," R. E. Essor, and L. M. Russert.

"Two Thousand Feet Up and One Foot down," W. E. Dickinson, Curator of Inv. Zoology, M. P. Museum.

"Anatomical Differences in the Genus *Dicontra*," June March.

"A Chalk Talk on the Conservation of Natural Resources," Tom Kelley, Soil Conservation Service.

"Use of the Cathode Ray Oscilloscope in Neurophysiology," Clement Fox, Anatomy Dept., M. U. Sch. of Medicine.

A Field Trip and Picnic; Examination of Fossil Life found in the Racine Quarry.

Alpha Kappa

—Hunter College

Alpha Kappa Chapter held its first meeting of the fall semester on November 15th. Dr. Theodora Nelson, a member of the faculty, spoke on one of the phases of biology which has contributed a great deal toward the war effort. Her topic, "Agricultural Biology at Tivoli," dealt with the various farming projects carried out by a group of students during their summer vacation. Known as the Women's Land Corps, headed by Dr. Nelson, the girls aided the many farmers at Tivoli, New York by plowing fields and picking fruits and vegetables. Instruction also was given on the recognition and economic importance of the common crops, weeds, livestock, wild animals, and in water and soil conservation. The lecture, illustrated with Kodachrome slides was very interesting and entertaining.

The next meeting held in December at the Roosevelt Memorial House was open to members of the faculty and others. The guest speaker was Professor Horace W. Stunkard from the Dept. of Biology, New York University. His topic was "Schistosomiasis," a blood fluke disease. A very interesting and lively discussion period followed.

GLORIA BECK
President.

Alpha Lambda

—University of Utah

Alpha Lambda Chapter has been active during another war-time year despite small membership and other dif-

faculties. Our newsletter continues to be our number one project, regular monthly issues being distributed to members wherever they may be, either in this country or abroad. Our mailing list to foreign lands has around thirty names. Our Christmas card this year, as last, consisted of a group picture of staff and student members autographed by all present.

Business meetings have been held regularly throughout the year during which the chapter constitution and by-laws have been revised and brought up to date. Since last sending in chapter news we have had two open meetings with illustrated talks by Biology Department staff members. Dr. William H. Behle spoke on "Biological Problems in Connection with Great Salt Lake." Dr. Walter P. Cottam talked on "Utah Trees."

Recently fourteen new members were taken into the local chapter. They are as follows: Wilford Belnap, Earl Christensen, Patricia Decker, Gwen Gleave, Janice Isenberg, Talmage Nielson, Dan Oniki, Oneita Pack, Anthony Sarreino, Virginia Scherbel, David Smith, Dorothy Thompson, Masaharu Tokunaga, George Uchiyama.

At our Initiation meeting held February 9, 1945, at the Student Union Building, Dr. William H. Behle was installed as faculty sponsor by Dr. Walter P. Cottam, his predecessor. Due to our president, Tom Rees, joining the U. S. Navy, the initiation ceremony was conducted by our Vice President Thelma T. Harrison. Dr. Ralph V. Chamberlin, Head of the Biology Department served as toastmaster. Dr. Margaret Schell, original sponsor of the chapter, reviewed the history of the local group and stressed the ideals of the Society.

During 1943-44, much research by departmental staff members came to a successful fruition. In addition to the numerous short articles, the following publications deserve special mention: "The Mosquitoes of Utah" by Don M. Rees; "The Birds of the Pine Valley Mountain Region, Southwestern Utah" and a "Check-list of the Birds of Utah" by William H. Behle; "The Spiders of the Georgia Region of North America" by Ralph V. Chamberlin and Wilton Ivie; "The Ferns of Utah" by Seville Flowers.

Student members of the chapter do-

ing research are: George Edmunds on the taxonomy and life history of the mayflies of Utah; David Smith on the genetics of human eye defects in Utah; Dean Belnap and Talmage Nielson on carbohydrate metabolism.

Recently three members completed their work for the Masters degree. Mrs. Dorothea Mulaik made a comparative study of the urino-genital system of an ovoviviparous and a viviparous lizard of the genus *Sceloperus*; Henry Setzer's problem was a systematic review of the kangaroo rats of Utah; Dixon Woodbury made a metabolic study of small reptiles. Setzer is now studying at the University of Kansas and Woodbury at the University of California.

Three Phi Sigma members have just been elected to Phi Kappa Phi: Charlotte Lister, Dorothy Marshall, and Mary Lou Turner.

Several faculty members are on leave of absence. Dr. W. W. Newby is with the United States Army Air Force. Calvin A. Richins is studying for a Ph. D. and teaching at St. Louis University. Stephen D. Durrant similarly is working for a Ph. D. and teaching at the University of Kansas. Dr. Fred R. Evans, Phi Sigma, 1936, now on leave from Stanford, is back at the University of Utah teaching in the Biology Department.

DELBERT LANDSEY
Secretary.

President—Earl M. Christensen
Vice President—Patricia Decker
Secretary—Janice Isenberg
Treasurer—Oneita Pack

During the last quarter of the school year for 1944-45, chapter members were the guests of Mr. and Mrs. Stanley Mulaik at an evening dinner party. At the next regular meeting the group assembled at the home of the chapter sponsor, Dr. Behle, at which time the new officers listed above were elected. Following the business, the new faculty member of the Biology Department, Dr. Fred M. Evans, talked on the biological research being carried on at Stanford University where he formerly taught. At the following meeting the Mulaiks showed several films of pictures on wildlife in the Rocky Mountains and southern deserts. The last regular meeting of the year featured George Edmunds, former president and at present a grad-

uate student, who discussed his thesis problem on the taxonomy and biology of the mayflies of Utah. The year's activities ended with a June picnic party in Mill Creek canyon.

Seven active members received their bachelor degrees at the University's 76th annual commencement and Phi Sigma members received many of the awards and honors. Mary Lou Turner received a \$500.00 national scholarship award given by Kappa Kappa Gamma and also the award given by the Mortar Board Alumnae for high scholarship and participation in campus activities. Charlotte Lister received the following honors: the George Emery Fellows Scholarship Medal Award given by the honor society of Phi Kappa Phi; the award given by the University of Utah Women's club to the senior girl attaining the highest scholarship; the award given by Alpha Lambda Delta Fraternity to its senior member attaining highest scholarship and the *Phi Sigma Biological Society Scholarship Medal*. Talmage Nielson received an award given by the Salt Lake Exchange Club to the University men for scholarship.

The chapter suffered a loss through

the death of a member, Jacob Richardson, who died in the service of his country at Luzon, the Philippines, April 17, 1945.

Faculty Notes: An important publication in ornithology that recently appeared in the University of Utah Biological Series is "The Birds of the Navajo Country" by A. M. Woodbury. Dr. F. E. Stephen's new laboratory for the study of human genetics is about ready for occupancy. Dr. Walter P. Cottam is teaching botany and ecology at Shrivenham, England, to United States Army students. Dr. W. W. Newby, although still with the armed forces, has been advanced to full professor and Dr. Seville Flowers to Associate Professor. Mrs. Mulaik and George Edmunds have been appointed instructors for the following year. Dr. David T. Jones has resigned to become head of the Department of Physical Sciences at Huntington Central College, Indiana.

With the war now ended, we are looking forward to an enlarged membership and a more active organization in the years to come.



Book Reviews—New Books

Except for the signed reviews, the thumbnail sketches of current biological literature appearing in this section are not meant to be exhaustive or deeply critical. They aim to survey the rapidly growing field of biology. Naturally these reviews represent the candid opinions of various readers not necessarily those of the National Council, nor even those of the Editor.

TEMPO AND MODE IN EVOLUTION
by GEORGE GAYLORD SIMPSON, XVIII.
237 pp. 19 Tables, 36 figs. Columbia
University Press, 1944. \$3.50.

The nineteenth century was characterized, in biology, by the development of many major theories as an outgrowth of the expansion of the morphological viewpoint. Approximately the last half of the eighteen hundreds was an era of synthesis based on morphology. At about the turn of the century, morphology had offered about all that it could that was of fundamental importance and the physiological emphasis began to dominate as expressed by the great advance in the experimental method of approach. Thus was initiated an analytical period, a search for new facts by new methods, associated with the development of various specialists capable of handling related complex techniques. Recent trends have shown the necessity of a return to synthesis in order to avoid the inevitable splitting of biology into dozens of subjects and thus losing the broader biological trends in too much emphasis on the parts of the whole.

The volume under review is one of a number of books published in the past ten years which furthers this synthetic trend. Written by a paleontologist of note, it attempts a critical analysis of the factors in organic evolution, particularly synthesizing facts derived from genetics and paleontology into a reasonably consistent theory as to how selection of mutations may work in populations in a changing environment, varying through geologic time. Statistical methods are used freely to arrive at estimates of evolutionary rates. Some problems are not solved by the author, as he well knows, but those which are not are defined by him and

delineated clearly. One does not have to agree with Dr. Simpson in every detail to see the value of his publication; for everyone will realize immediately that where the author's theses may be called into question, just there is further information needed; information moreover, which can be had only by further research.

This book is addressed to mature scientists and for such it is highly recommended. Whether one agree or not, Dr. Simpson will make him think.

ARTHUR N. BRAGG.

LABORATORY MANUAL FOR GENERAL BACTERIOLOGY by DEPARTMENT OF BACTERIOLOGY AND IMMUNOLOGY, University of Minnesota. W. B. Saunders Company. Philadelphia and London, 1945.

The manual is designed for use by general students who are receiving their first concentrated course in bacteriology. The exercises are so arranged, that after the first one, which is designed to provide a quick survey of protozoa, algae, yeasts, molds and bacteria, the student can go ahead and make a more exact and careful study of each. Methods of making media, staining to bring out certain characteristics and structures of each of the organisms are easy to follow. Applied aspects together with pathogenic, morphologic and physiologic should be attained. An exercise is included on the handling of the microscope. Questions at the end of the exercises point out the way to study the organisms, and are a stimulus to thought and future study. The appendix includes the formulas for medias and stains which are used for the preparation and study of the various studies included.

HUMAN ANATOMY AND PHYSIOLOGY by MILLARD AND KING—2nd Edi-

tion. *W. B. Saunders Company, Philadelphia and London, 1945. Price \$3.00.*

A text for anatomy students especially interested in nursing, which has been developed to follow the curriculum outlined for Schools of Nursing. Unit one deals with the body as a whole. Here one is introduced to all parts of the body. In Unit II, the Skeletal System is studied. This is followed by the Skeletal Muscles. The muscles are presented as muscles which move a part. The flexors, extensors, adductors and abductors of each muscle arrangement are described. The third Unit shows how the body systems are interrelated by the activity of the circulating fluids as they keep up the functions of the metabolic supplies and metabolic end products. Unit IV. and V. give respectively the consideration of the origin and development of the human body. And the smoothly running unit of the nervous system. Additional drawings have been added which make the book outstanding from the viewpoint of illustrations alone.

Many important discussions have been added such as chemical changes during the muscle contraction and pseudostratified epithelium. In the final chapter the functional relationship of

the various parts of the nervous system have been further developed by having each sensory mechanism traced.

TEXTBOOK OF BACTERIOLOGY by JORDAN AND BURROWS. *14th Edition. 1945. W. B. Saunders Company. Price \$7.00.*

The new wealth of material added to this addition is a joy to the student of bacteriology. In this volume can be found new illustrations which help the person hunting for up to date material for class room discussion on medical parasitology, medical mycology, respiratory enzymes, and oxidation-reduction potential, the mode of action of the sulfonamide drugs, iso-antigens, and antibodies, diagnosis of various infectious diseases, and the sections on primary atypical pneumonia, post vaccination hepatics. New material has been added to the chapters on Asiatic Cholera, the antigenic structure of the Salmonella types, experimental epidemiology and more general considerations of the rickettsiae.

The development of the various subjects has been taken up in a more logical sequence, which makes the book have more value for the student of bacteriology and the instructor of said student.



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The Duties Of The Chapter Secretary

To the National Secretary:

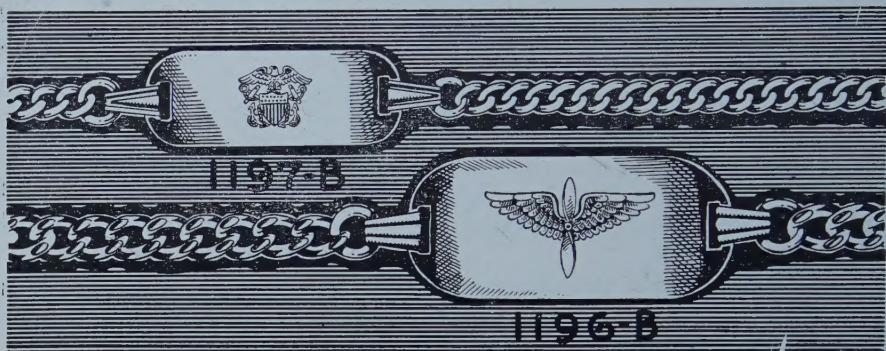
1. At the beginning of each school year furnish the names *and* addresses of chapter officers.
2. Order all chapter supplies well in advance of time needed.
3. Order certificates at least two weeks before initiation date.
4. Send initiation fees and membership record blanks at time certificates are ordered.
5. Be sure that copies of THE BIOLOGIST are received by *all* members including faculty and honorary members.

To the National Treasurer:

1. Furnish correct list of chapter officers and addresses.
2. Inform the national treasurer at least a month in advance of the correct number of BIOLOGISTS needed for all your members.
3. Report name, serial number and date of initiation of each initiate at time certificates are ordered.

To the Editor:

1. Furnish a correct list of chapter officers and addresses.
2. Send chapter news letters for BIOLOGIST at least four weeks in advance of publication.
3. Send in copies of outstanding biological lectures or addresses (not however research reports) delivered at your institution.
4. Send in helpful suggestions or constructive criticisms concerning THE BIOLOGIST.



On ACTIVE DUTY

MEN IN ACTIVE FIELDS OF SERVICE — whether in India, Italy, the E. T. O., or in the islands of the South Pacific — wear Balfour identification bands mounted with their fraternity crest or service insignia, and engraved with name, serial number, and blood type.

Both of the crash tags shown above are made of rugged, soldered links which will stand up under strenuous use on active duty. The panels are heavy and a generous size for engraving.

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W-1196-B Women's length 7"

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M-1197-B Men's length $7\frac{1}{2}$ "

W-1197-B Women's length 7"

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$\frac{1}{8}$ 10K Gold Filled 6.00*

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